

What is claimed is:

- Sub A1*
- 102B 104*
- 103B 104*
- 102C*
- 104*
- 102D*
- 104*
- 102E*
- 104*
- 102F*
- 104*
- 102G*
- 104*
- 102H*
- 104*
- 102I*
- 104*
- 102J*
- 104*
- 102K*
- 104*
- 102L*
- 104*
- 102M*
- 104*
- 102N*
- 104*
- 102O*
- 104*
- 102P*
- 104*
- 102Q*
- 104*
- 102R*
- 104*
- 102S*
- 104*
- 102T*
- 104*
- 102U*
- 104*
- 102V*
- 104*
- 102W*
- 104*
- 102X*
- 104*
- 102Y*
- 104*
- 102Z*
- 104*
1. A bat comprising:
a hitting surface;
a handle element attached to the hitting surface; and
a sleeve positioned within the hitting surface, wherein the hitting surface and
the sleeve are comprised of composite materials.
2. The bat of claim 1 wherein the hitting surface has a first stiffness and
the sleeve positioned within the hitting surface has a second stiffness
different than the first stiffness.
3. The bat of claim 1 wherein the hitting surface has a first stiffness and
the sleeve positioned within the hitting surface has a second stiffness
different than the first stiffness, wherein the second stiffness is
approximately 3 times the stiffness of the first stiffness.
4. The bat of claim 1 wherein the hitting surface is made from a first set
of fibers and a first resin and wherein the sleeve is made from a second set of
fibers and a second resin, the second set of fibers and the second resin being
different than the first set of fibers and first resin.
5. The bat of claim 4 wherein the first set of fibers includes a tubular
sock.
6. The bat of claim 4 wherein the second fiber and resin is impregnated
in the second set of fibers.

103a
7. The bat of claim 6 wherein the second fiber and second resin is an E-glass fiber impregnated resin.

103a b
8. The bat of claim 4 wherein the second set of fibers and resin is a sheet of material.

9. A method of forming a bat comprising:
forming a tubular hitting surface;
forming a sleeve from composite material; and
fitting the sleeve within the tubular surface.

10. The method of claim 9 wherein the step of fitting the sleeve within the tubular surface comprises force fitting the sleeve within the tubular hitting surface.

11. The method of claim 9 wherein the step of forming a sleeve from composite material comprises laying up a plurality of layers of material.

12. The method of claim 11 wherein laying up a plurality of layers of material further comprises laying up a first layer of material and a second layer of material at different angles.

13. The method of claim 11 wherein laying up a plurality of layers of material further comprises laying up a first layer of material and a second layer of material at different angles, wherein the angles of laying up are varied to change the nodes of vibration within the bat.

14. The method of claim 9 wherein the step of forming a sleeve from composite material comprises:

laying up a plurality of layers of material; and
wrapping the plurality of layers about a mandrel.

15. The method of claim 9 wherein the step of forming a sleeve from composite material comprises:

laying up a plurality of layers of material;
wrapping the plurality of layers about a mandrel; and
wrapping tape over the plurality of layers about the mandrel.

16. The method of claim 14 wherein the step of wrapping tape includes:
wrapping a first layer of tape to produce a release layer; and
wrapping a second layer of tape to produce a strength layer.